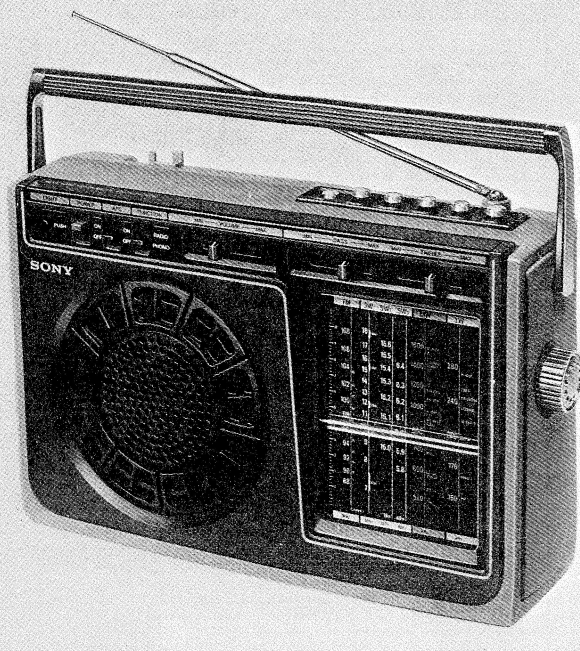
ICF-8900L

2904

UK Model
AEP Model



FM-LW-MW-SW
6-BAND PORTABLE RADIO

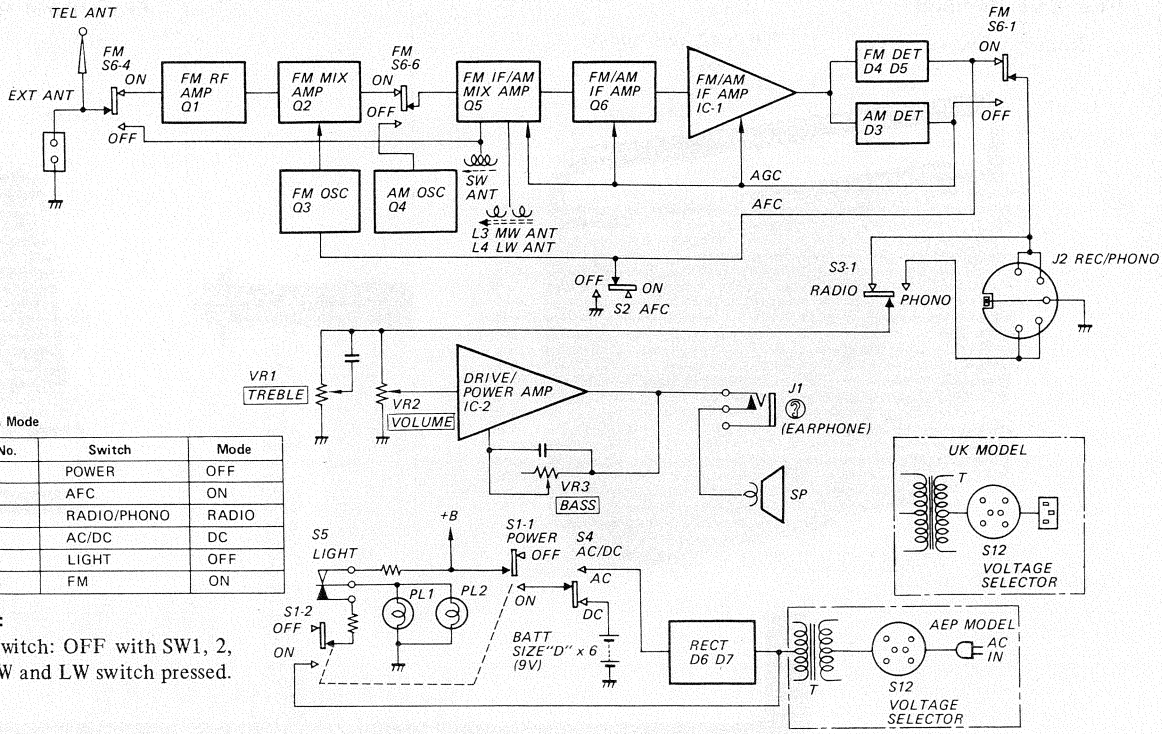
SPECIFICATIONS

Semiconductors:	6 transistors, 2 ICs
Antennas:	FM/SW1, SW2, SW3: telescopic antenna and EXT ANT contact MW/LW: ferrite bar antenna
Frequency Ranges:	FM: 87.5 – 108 MHz (3.43 – 2.78 m) MW: 530 – 1605 kHz (566 – 187 m) LW: 150 – 285 kHz (2,000 – 1,052 m) SW1: 7 – 18 MHz (16 – 41 m) SW2: 15.0 – 15.6 MHz (19 m Band) SW3: 5.8 – 6.4 MHz (49 m Band)
Intermediate Frequencies:	FM: 10.7 MHz AM: 468 kHz
Power Output:	1.9 W at 10 % distortion
Current Drain:	30 mA at no signal
Power Requirements:	AC: 110 V, 127 V, 220 V, 240 V DC: 9 V Battery size-D, 6 pcs.
Weight:	3.0 kg (6 lb 10 oz) with batteries
Dimensions:	341 (w) x 220 (h) x 100 (d) mm 13½ (w) x 8¾ (h) x 4 (d) inches

SONY®

SERVICE MANUAL

1. BLOCK DIAGRAM

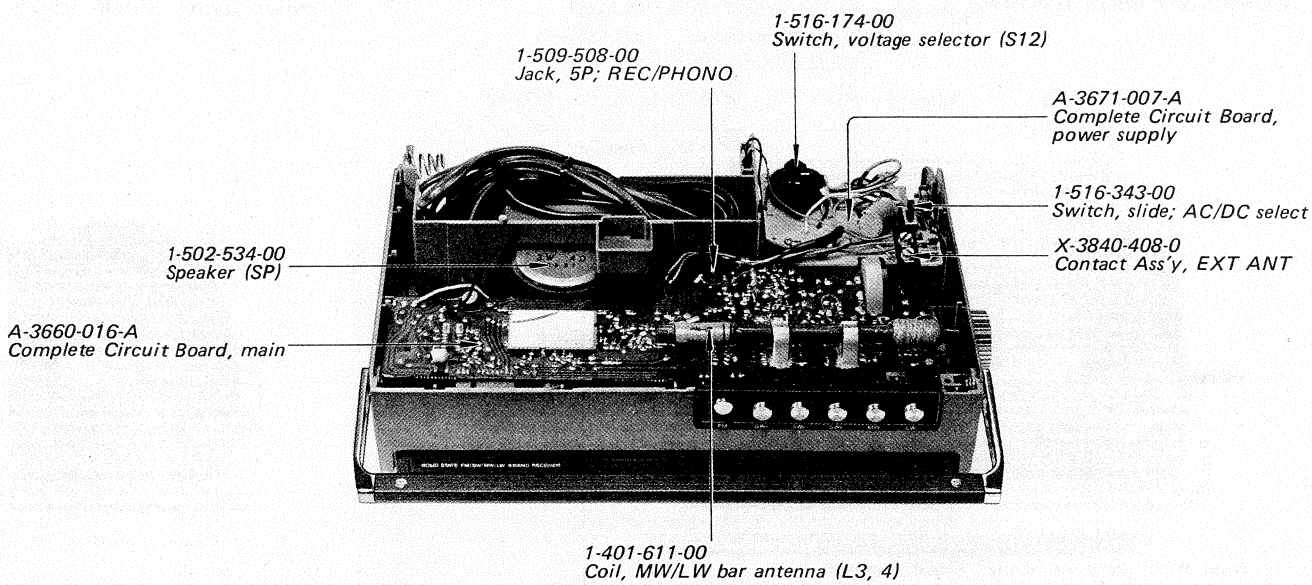


• Switch Mode

Ref. No.	Switch	Mode
S1	POWER	OFF
S2	AFC	ON
S3	RADIO/PHONO	RADIO
S4	AC/DC	DC
S5	LIGHT	OFF
S6	FM	ON

Note:
FM switch: OFF with SW1, 2, 3, MW and LW switch pressed.

2. INTERNAL VIEW

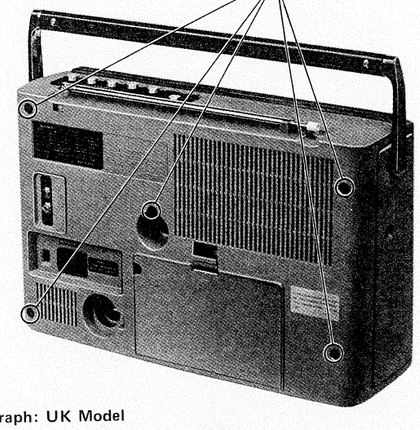


Photograph: AEP Model

3. DISASSEMBLY

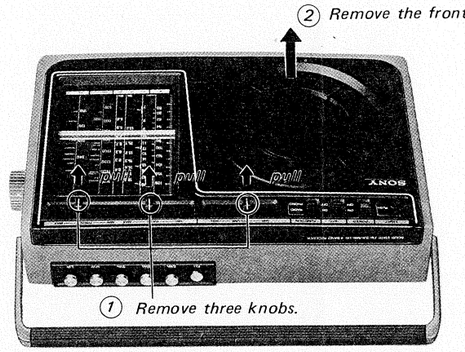
Rear Case Removal

Remove five screws. ⊕ P 3x42, self-tapping

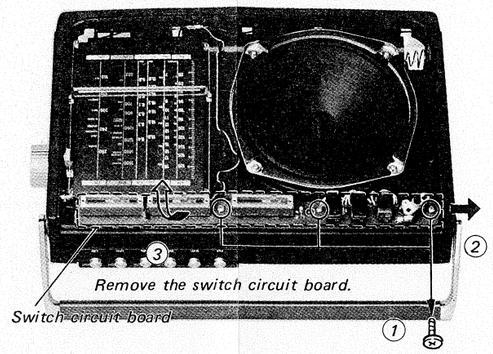


Photograph: UK Model

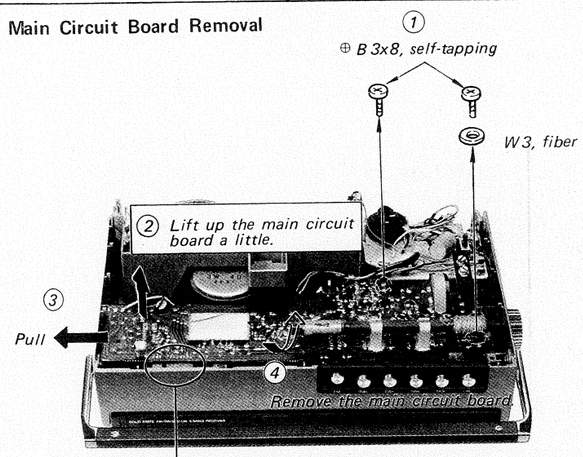
Front Panel Removal



Switch Circuit Board Removal

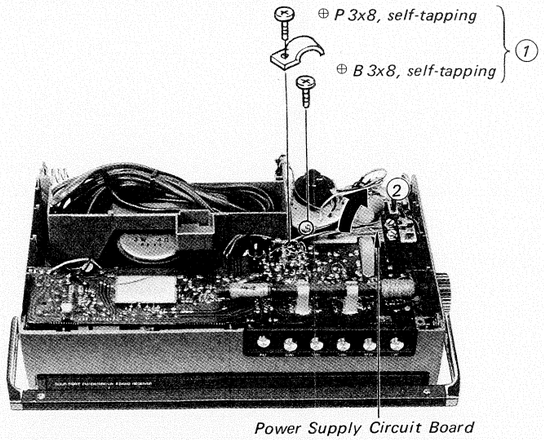


Main Circuit Board Removal



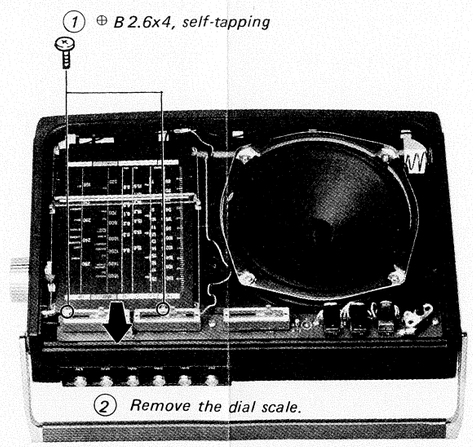
Note: With the main circuit board removed, the unit does not operate. For checking the component side of the main circuit board during operation, remove the front panel, the speaker and the dial plate.

Power Supply Circuit Board Removal



Photograph: AEP Model

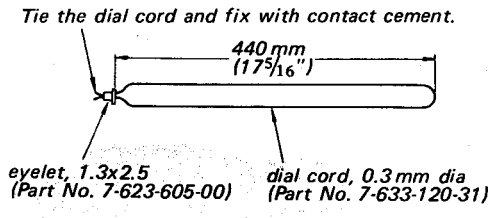
Dial Scale Removal



4. DIAL CORD STRINGING

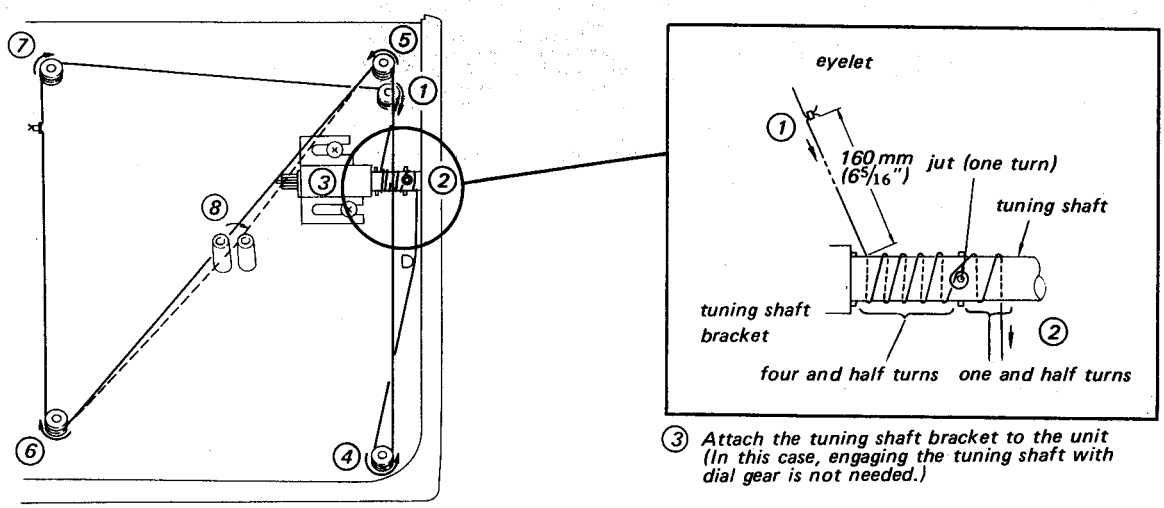
Note: Remove the main circuit board, dial scale and tuning shaft bracket from the unit.

4-1. Dial Cord Preparation


Tie the dial cord and fix with contact cement.
440 mm (17 5/16")
eyelet, 1.3x2.5 (Part No. 7-623-605-00)
dial cord, 0.3 mm dia (Part No. 7-633-120-31)

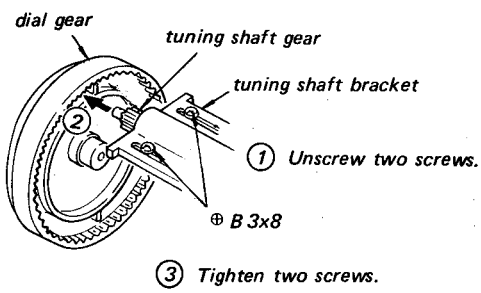
4-2. Dial Cord Stringing

Proceed in numeral order.

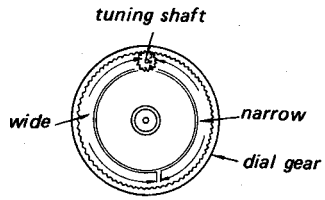

eyelet
160 mm (6 5/16") jut (one turn)
tuning shaft
tuning shaft bracket
four and half turns
one and half turns
③ Attach the tuning shaft bracket to the unit (In this case, engaging the tuning shaft with dial gear is not needed.)

4-3. Dial Gear Setting

Note: Rotate the dial gear fully counterclockwise.

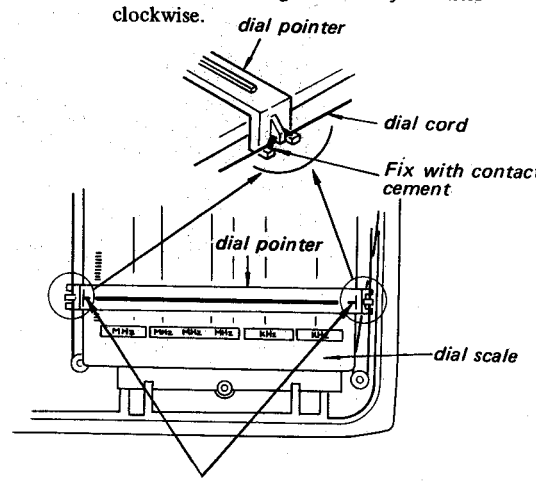


After setting, make sure that the position of dial gear is as shown



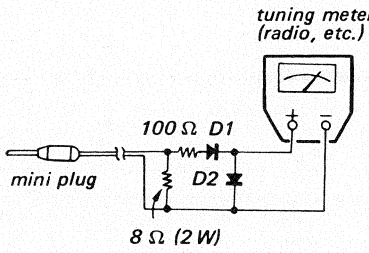
4-4. Dial Pointer Setting

Note: Rotate the tuning shaft fully counter-clockwise.



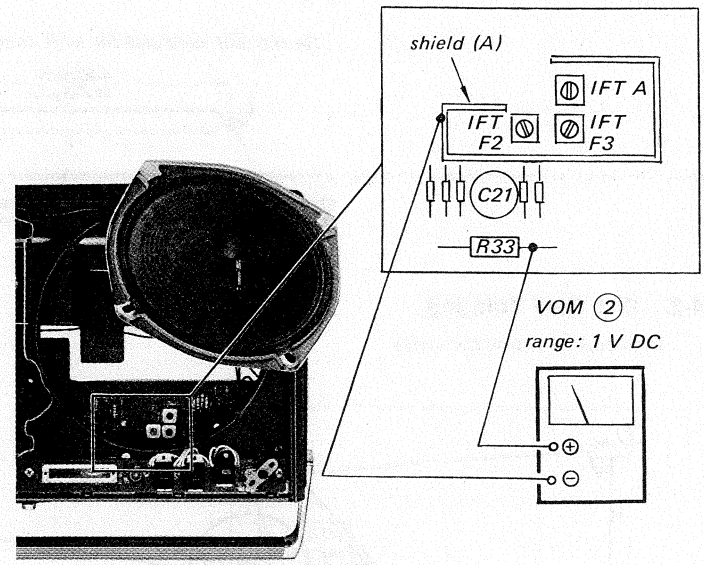
5. ADJUSTMENTS

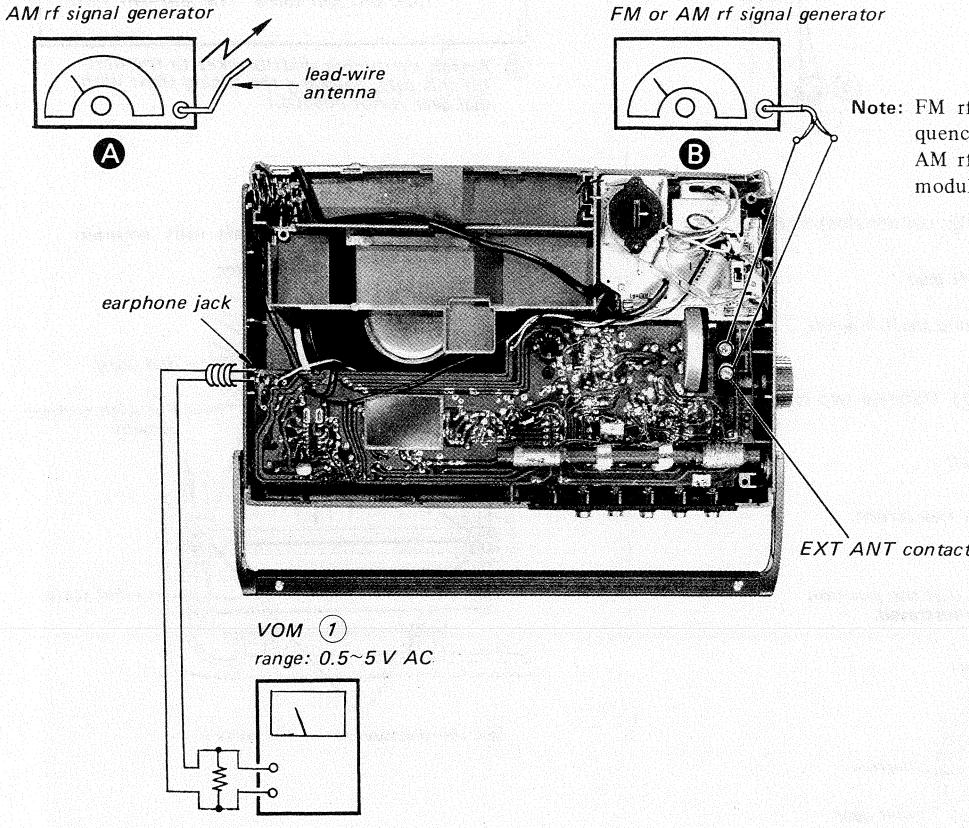
Note: Instead of VOM (range: 0.5~5 V AC), a simple test equipment shown below can be used.



D1, D2; germanium diode or power germanium transistor (2SB495, etc.)

Test Setup:



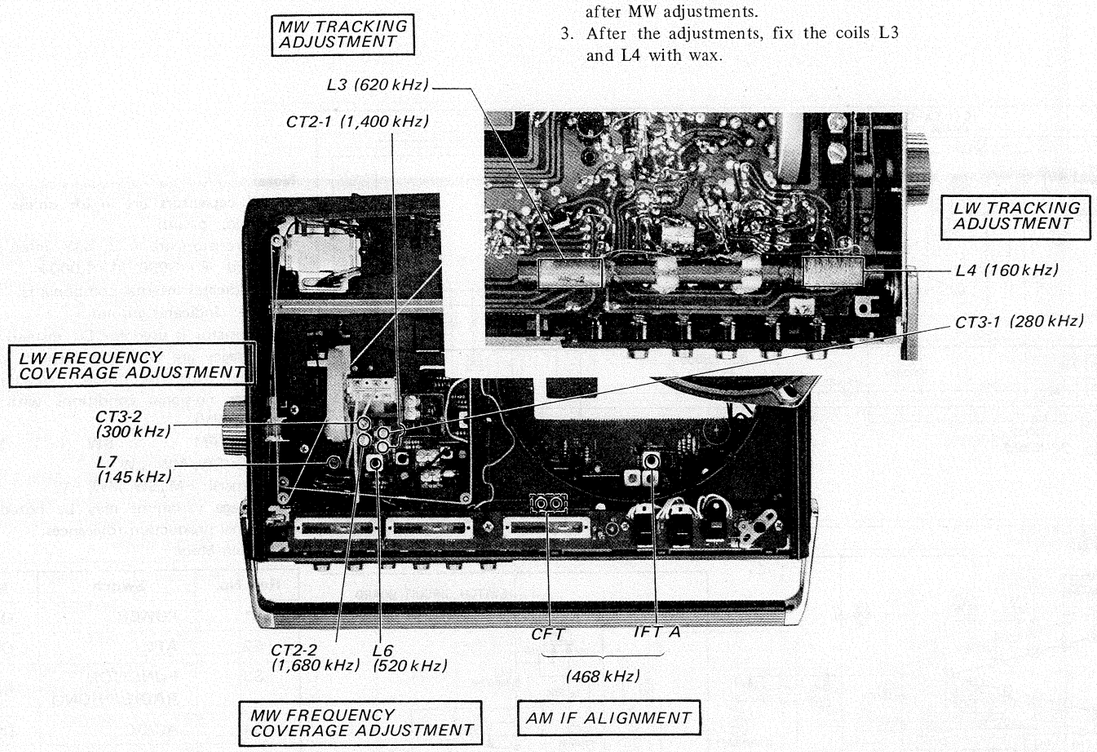


Note: FM rf signal generator: ±22.5 kHz frequency deviation by 400 Hz signal.
AM rf signal generator: 30 % amplitude modulation by 400 Hz signal.

AM IF, MW, LW

AM rf signal generator connection: Ⓐ

Note: 1. Adjust for maximum reading on VOM ①
2. LW adjustments should be performed after MW adjustments.
3. After the adjustments, fix the coils L3 and L4 with wax.

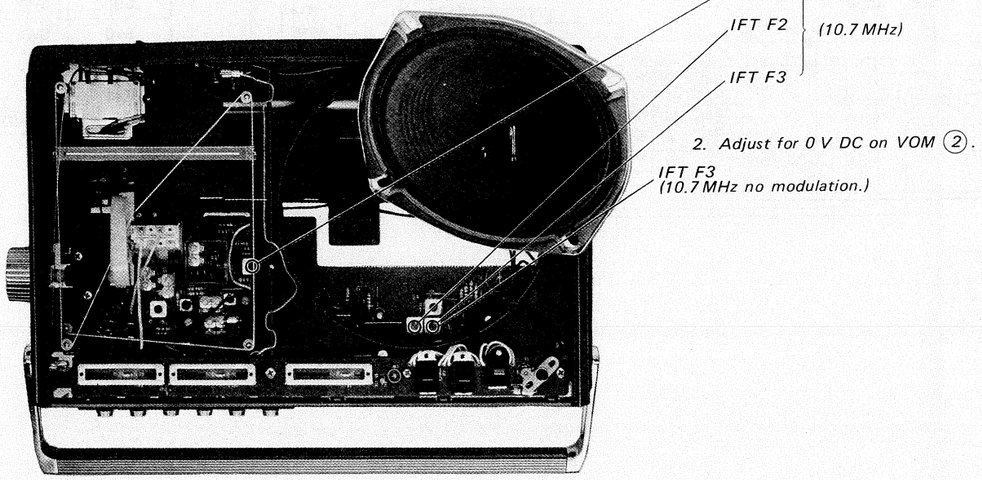


FM IF

FM rf signal generator connection: Ⓑ

FM IF ALIGNMENT

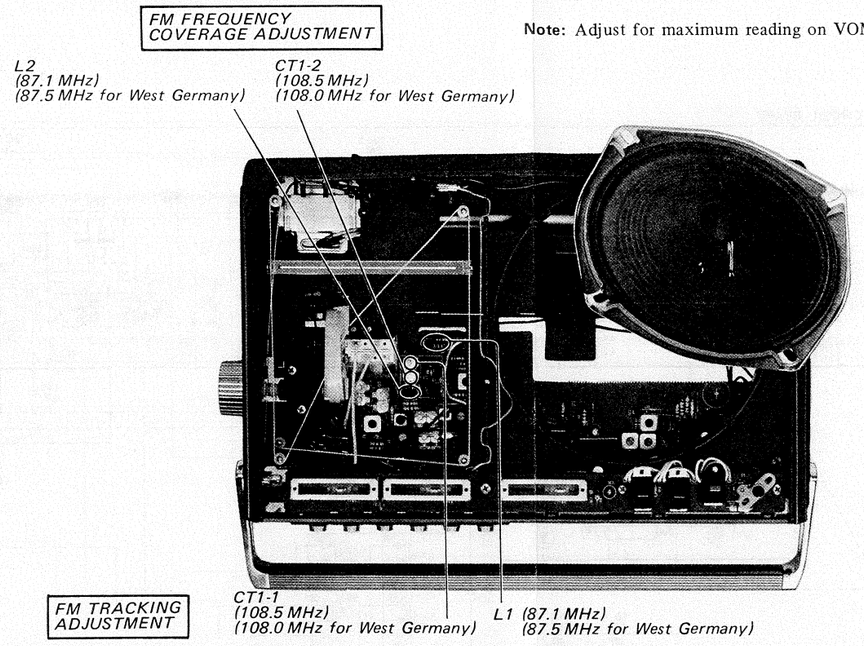
1. Adjust for maximum reading on VOM ①.
2. Adjust for 0 V DC on VOM ②.



FM

FM rf signal generator connection: Ⓑ

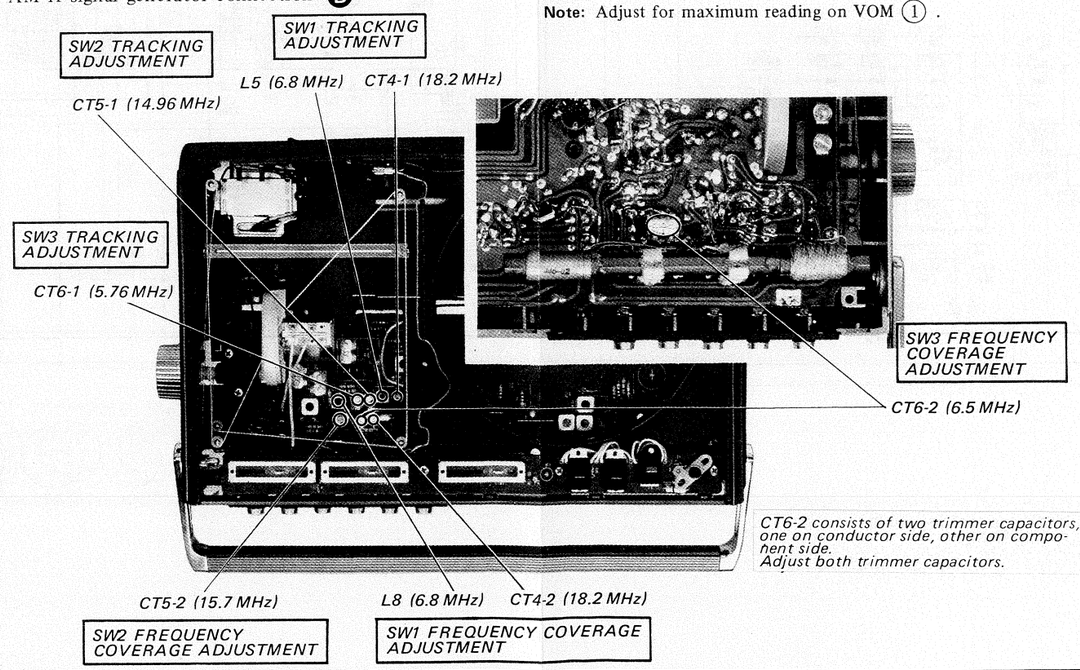
Note: Adjust for maximum reading on VOM ① .


FM FREQUENCY COVERAGE ADJUSTMENT
L2 (87.1 MHz) (87.5 MHz for West Germany)
CT1-2 (108.5 MHz) (108.0 MHz for West Germany)
FM TRACKING ADJUSTMENT
CT1-1 (108.5 MHz) (108.0 MHz for West Germany)
L1 (87.1 MHz) (87.5 MHz for West Germany)

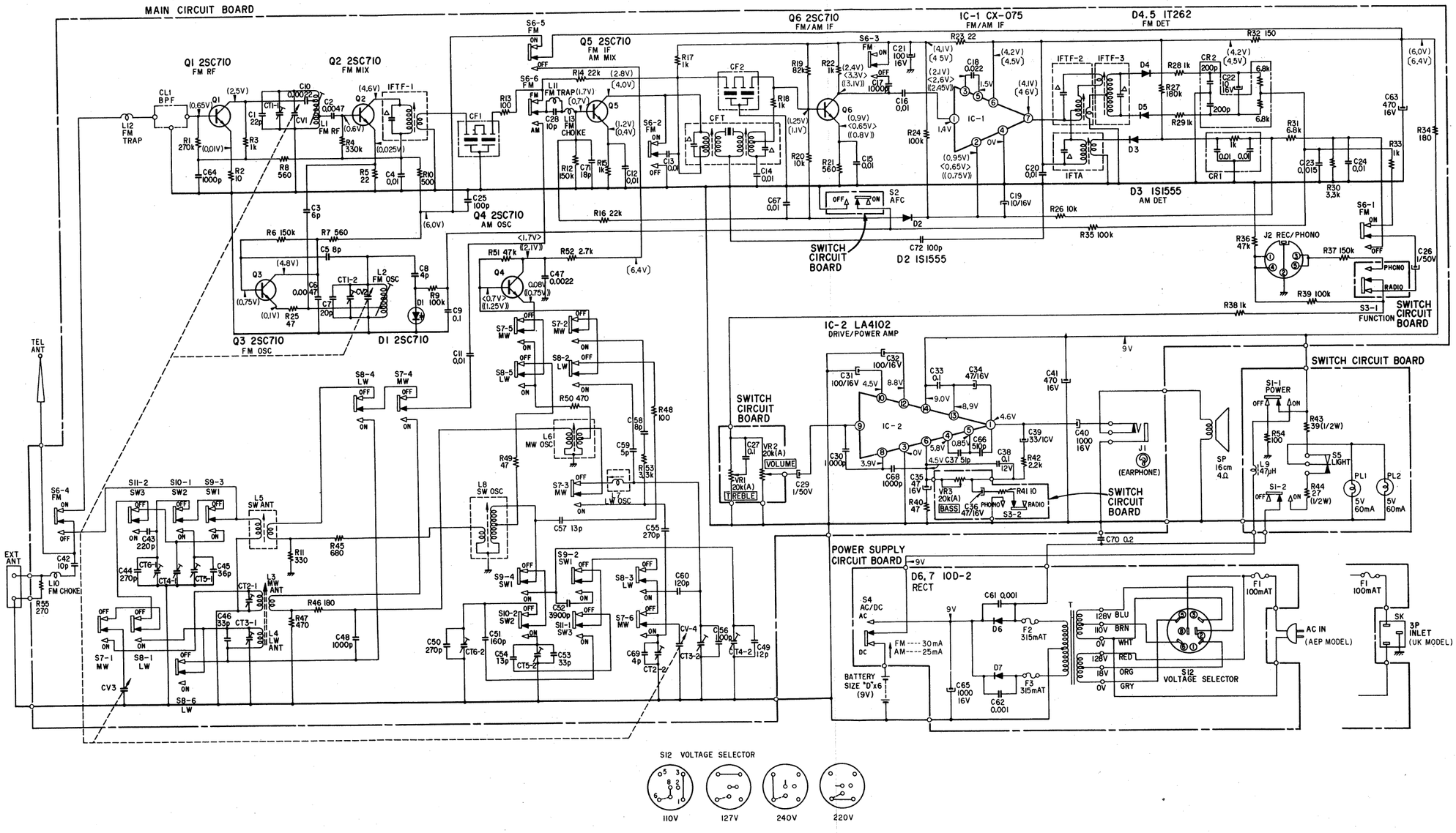
SW1, SW2, SW3

AM rf signal generator connection: Ⓑ

Note: Adjust for maximum reading on VOM ① .



6. SCHEMATIC DIAGRAM

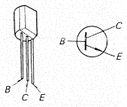


Note:

- All capacitors are in μF unless otherwise noted. p = μμF
- All resistors are in Ω, ¼ W, unless otherwise noted. k = 1,000 M = 1,000 k
- △ indicates internal components.
- ⏚ indicates ground.
- Transistor is used for D1 instead of diode.
- Voltages are DC with respect to ground unless otherwise noted. Readings taken under no-signal conditions with a VOM (12 kΩ/V)
  ( ): FM < >: SW (( )): MW, LW
  [ ]: SW, MW, LW
  no mark: FM, SW, MW, LW
  Voltage variations may be noted due to normal production tolerances.
- Switch Mode

Ref. No.	Switch	Mode
S1	POWER	OFF
S2	AFC	ON
S3	FUNCTION RADIO/PHONO	RADIO
S4	AC/DC	DC
S5	LIGHT	OFF
S6	FM	ON
S7	MW	OFF
S8	LW	OFF
S9	SW1	OFF
S10	SW2	OFF
S11	SW3	OFF
S12	VOLTAGE SELECTOR	—

Q1, 2, 3, 4, 5, 6, D1
2SC710

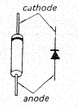


IC-1
CX-075

IC-2
LA4102

(Top view)

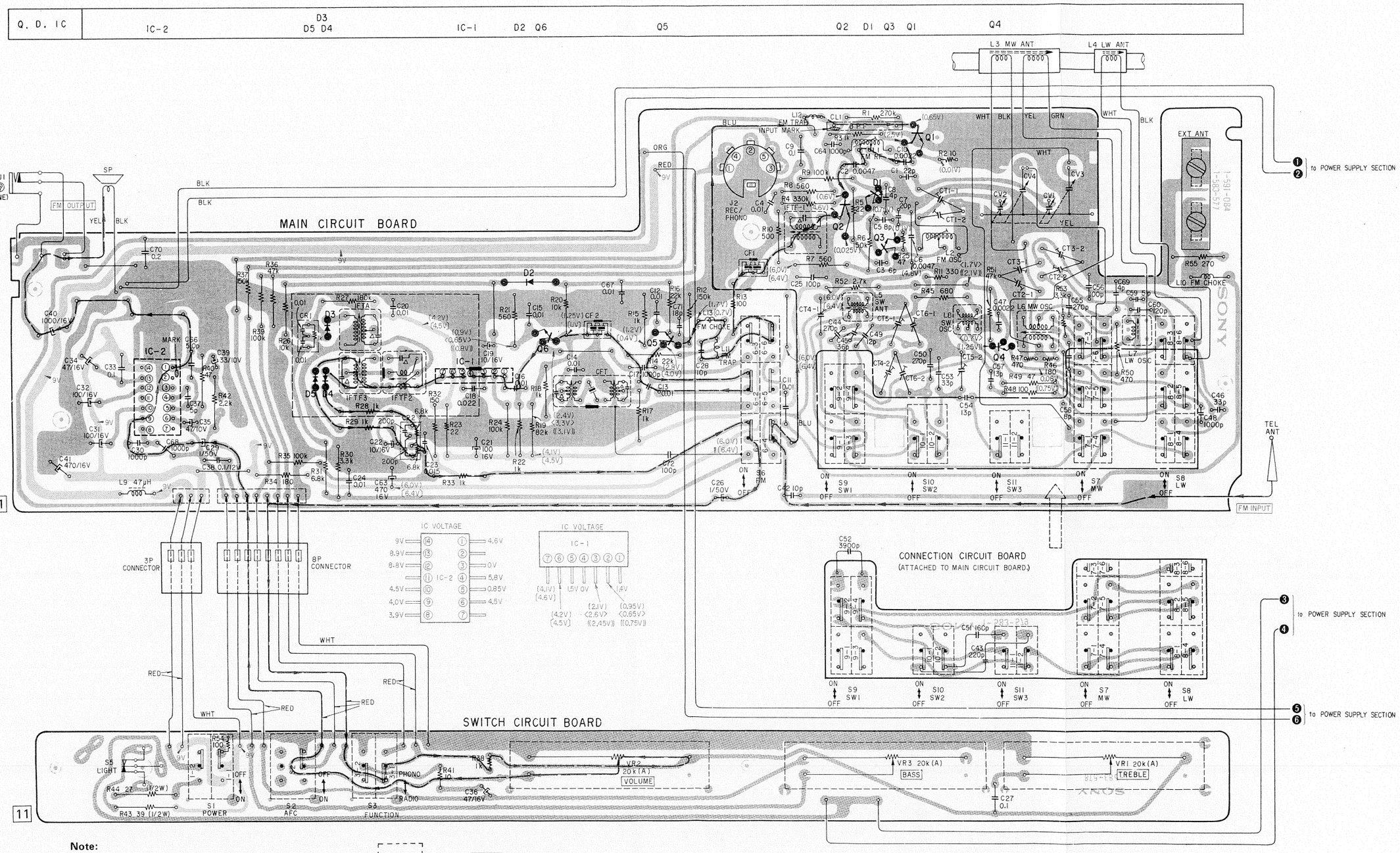
D2, 3, 4, 5
1T26



7. MOUNTING DIAGRAMS

7-1. Main Section

— Conductor Side —



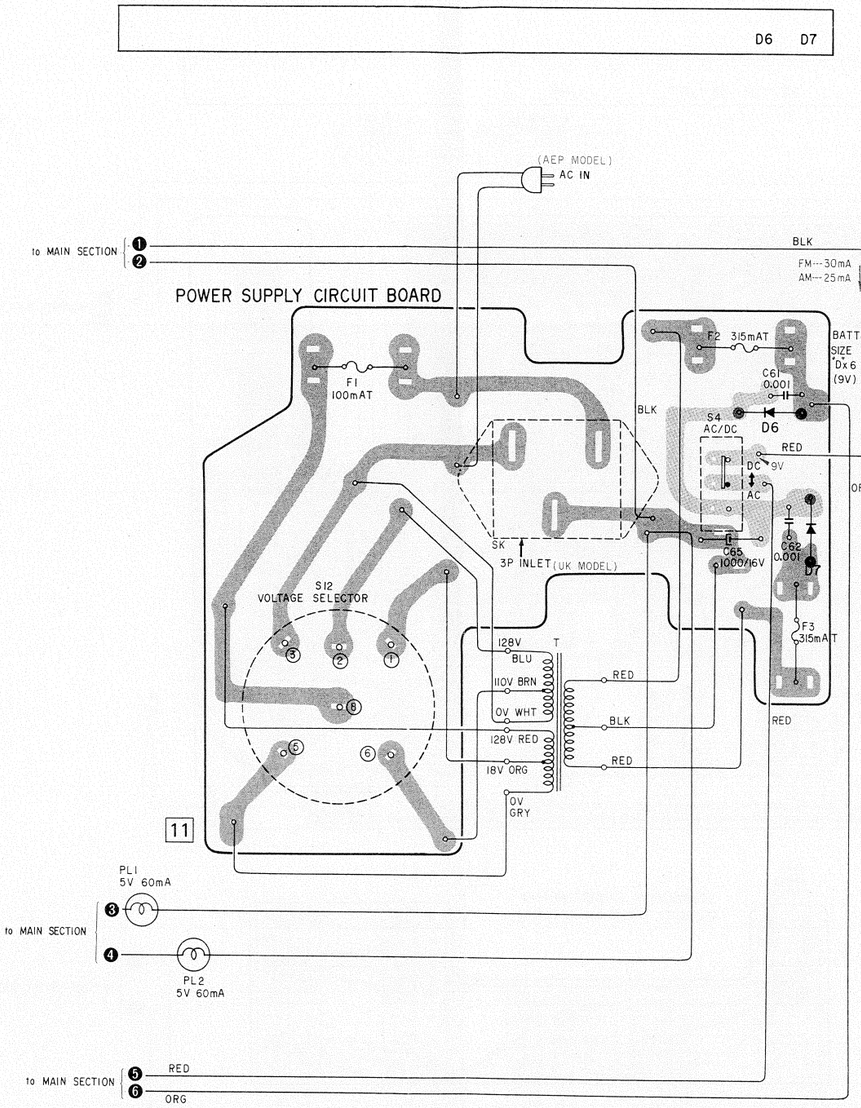
Note:
Place CF1, CF2, BPF, CFT, IFT F-2 and IC-1, so that the marking side comes as shown.

mark

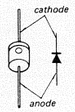
B+ pattern
signal path

7-2. Power Supply Section

— Conductor Side —

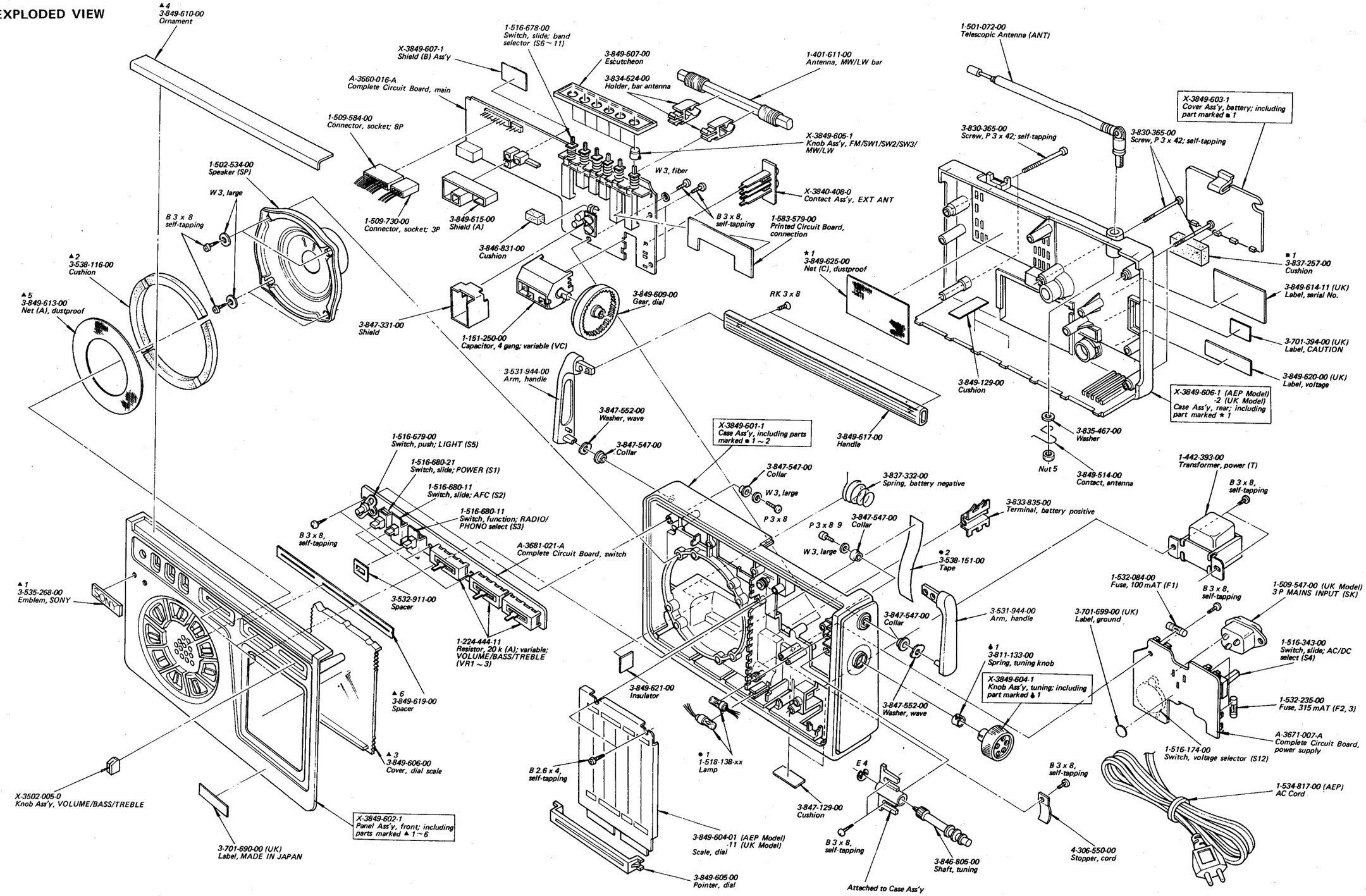


D6, 7
10D-2



MEMO

8. EXPLODED VIEW


▲4 3-849-610-00 Ornament
1-516-678-00 Switch, slide; band selector (S6 ~ 11)
X-3849-607-1 Shield (B) Ass'y
3-849-607-00 Escutcheon
1-401-611-00 Antenna, MW/LW bar
A-3660-016-A Complete Circuit Board, main
3-834-624-00 Holder, bar antenna
1-509-584-00 Connector, socket; 8P
X-3849-605-1 Knob Ass'y, FM/SW1/SW2/SW3/ MW/LW
1-502-534-00 Speaker (SP)
W 3, large
B 3 x 8 self-tapping
W 3, fiber
X-3840-408-0 Contact Ass'y, EXT ANT
1-509-730-00 Connector, socket; 3P
3-849-615-00 Shield (A)
B 3 x 8, self-tapping
1-583-579-00 Printed Circuit Board, connection
3-846-831-00 Cushion
★1 3-849-625-00 Net (C), dustproof
▲2 3-538-116-00 Cushion
▲5 3-849-613-00 Net (A), dustproof
3-849-609-00 Gear, dial
RK 3 x 8
3-847-331-00 Shield
1-151-250-00 Capacitor, 4 gang; variable (VC)
3-531-944-00 Arm, handle
3-847-552-00 Washer, wave
3-849-617-00 Handle
X-3849-601-1 Case Ass'y, including parts marked ● 1 ~ 2
1-516-679-00 Switch, push; LIGHT (S5)
3-847-547-00 Collar
1-516-680-21 Switch, slide; POWER (S1)
1-516-680-11 Switch, slide; AFC (S2)
1-516-680-11 Switch, function; RADIO/ PHONO select (S3)
B 3 x 8, self-tapping
A-3681-021-A Complete Circuit Board, switch
3-847-547-00 Collar
W 3, large
P 3 x 8
3-837-332-00 Spring, battery negative
P 3 x 8 9
3-847-547-00 Collar
W 3, large
3-833-835-00 Terminal, battery positive
●2 3-538-151-00 Tape
▲1 3-535-268-00 Emblem, SONY
3-532-911-00 Spacer
1-224-444-11 Resistor, 20 k (A); variable; VOLUME/BASS/TREBLE (VR1 ~ 3)
3-847-547-00 Collar
3-531-944-00 Arm, handle
3-849-621-00 Insulator
★1 3-811-133-00 Spring, tuning knob
X-3849-604-1 Knob Ass'y, tuning; including part marked ★1
3-847-552-00 Washer, wave
▲6 3-849-619-00 Spacer
▲3 3-849-606-00 Cover, dial scale
X-3502-005-0 Knob Ass'y, VOLUME/BASS/TREBLE
X-3849-602-1 Panel Ass'y, front; including parts marked ▲ 1 ~ 6
3-701-690-00 (UK) Label, MADE IN JAPAN
B 2.6 x 4, self-tapping
●1 1-518-138-xx Lamp
3-847-129-00 Cushion
E 4
B 3 x 8, self-tapping
3-846-805-00 Shaft, tuning
Attached to Case Ass'y
3-849-604-01 (AEP Model) -11 (UK Model) Scale, dial
3-849-605-00 Pointer, dial
1-501-072-00 Telescopic Antenna (ANT)
X-3849-603-1 Cover Ass'y, battery; including part marked ■1
3-830-365-00 Screw, P 3 x 42; self-tapping
3-830-365-00 Screw, P 3 x 42; self-tapping
■1 3-837-257-00 Cushion
3-849-614-11 (UK) Label, serial No.
3-701-394-00 (UK) Label, CAUTION
3-849-620-00 (UK) Label, voltage
3-849-129-00 Cushion
X-3849-606-1 (AEP Model) -2 (UK Model) Case Ass'y, rear; including part marked ★1
3-835-467-00 Washer
Nut 5
3-849-514-00 Contact, antenna
1-442-393-00 Transformer, power (T)
B 3 x 8, self-tapping
1-532-084-00 Fuse, 100 mAT (F1)
B 3 x 8, self-tapping
1-509-547-00 (UK Model) 3P MAINS INPUT (SK)
3-701-699-00 (UK) Label, ground
1-516-343-00 Switch, slide; AC/DC select (S4)
1-532-235-00 Fuse, 315 mAT (F2, 3)
A-3671-007-A Complete Circuit Board, power supply
1-516-174-00 Switch, voltage selector (S12)
B 3 x 8, self-tapping
1-534-817-00 (AEP) AC Cord
4-306-550-00 Stopper, cord

Note: ○ Items without part number and description are not available.
○ All screws are Phillips (cross recess) type unless otherwise noted.
(–) = slotted head

9. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
	COMPLETE CIRCUIT BOARDS	
	A-3660-016-A	Main
	A-3671-007-A	Power Supply
	A-3681-021-A	Switch
	PRINTED CIRCUIT BOARD	
	1-583-579-00	Connection
	SEMICONDUCTORS	
Q1~6		Transistor 2SC710
D1		Diode 2SC710
D2,3		Diode 1S1555
D4,5		Diode 1T262
D6,7		Diode 10D2
IC1		IC (IF), CX-075
IC2		IC (AF), LA4102
	TRANSFORMERS	
T	1-442-393-00	Power
CFT3	1-403-828-00	468 kHz CF (CFT)
IFT F-1	1-403-899-00	FM IFT (MIX)
IFT F-2	1-403-903-00	FM IFT, DISCRI (primary)
IFT F-3	1-403-902-00	FM IFT, DISCRI (secondary)
IFTA	1-403-965-00	AM IFT (DET)
	COILS	
L1	1-425-867-00	FM RF
L2	1-425-792-00	FM Osc
L3,4	1-401-611-00	MW/LW Bar Antenna
L5	1-401-507-00	SW Antenna
L6	1-405-609-00	MW Osc
L7	1-405-671-00	LW Osc
L8	1-405-533-00	SW Osc
L9	1-407-407-00	Microinductor
L10	1-401-526-00	FM CHOKE
L11	1-401-495-00	FM TRAP
L12	1-401-495-00	FM TRAP
L13	1-401-526-00	FM CHOKE

CAPACITORS

All capacitors are in μF and ceramic type unless otherwise indicated. (pF = μμF, elect = electrolytic)

Ref. No.	Part No.			
C1	1-102-959-11	22p	50V	
C2	1-101-922-11	0.0047	25V	
C3	1-102-808-11	6p	50V	
C4	1-101-923-11	0.01	25V	
C5	1-102-810-11	8p	50V	
C6	1-101-922-11	0.0047	25V	
C7	1-101-981-11	20p	50V	
C8	1-102-941-11	4p	50V	
C9	1-101-797-11	0.1	12V	boundary layar
C10	1-101-919-11	0.0022	25V	
C11~16	1-101-923-11	0.01	25V	
C17	1-101-455-11	1000p	50V	
C18	1-101-924-11	0.022	25V	
C19	1-121-651-11	10	16V	elect
C20	1-101-923-11	0.01	50V	
C21	1-121-414-11	100	16V	elect
C22	1-121-651-11	10	16V	elect
C23	1-108-279-12	0.015	50V	mylar
C24	1-108-278-12	0.01	50V	mylar
C25	1-102-973-11	100p	50V	
C26	1-121-391-11	1	50V	elect
C27	1-101-797-11	0.1	12V	boundary layar
C28	1-102-947-11	10p	50V	
C29	1-121-391-11	1	50V	elect
C30	1-101-455-11	1000p	50V	
C31,32	1-121-414-11	100	50V	elect
C33	1-101-797-11	0.1	12V	boundary layar
C34~36	1-121-352-11	47	16V	elect
C37	1-101-882-11	51p	50V	
C38	1-101-797-11	0.1	12V	boundary layar
C39	1-121-402-11	33	10V	elect
C40	1-121-245-11	1000	16V	elect
C41	1-121-426-11	470	16V	elect
C42	1-102-947-11	10p	50V	
C43	1-103-709-11	220p	50V	polystyrene
C44	1-107-095-11	270p	50V	silvered mica
C45	1-102-964-11	36p	50V	
C46	1-102-963-11	33p	50V	
C47	1-101-919-11	0.0022	25V	
C48	1-101-455-11	1000p	50V	
C49	1-102-262-11	12p	50V	
C50	1-103-711-11	270p	50V	polystyrene
C51	1-103-706-11	160p	50V	polystyrene
C52	1-103-739-11	3900p	50V	polystyrene
C53	1-102-963-11	33p	50V	
C54	1-107-064-11	13p	50V	silvered mica
C55	1-107-095-11	270p	50V	silvered mica
C56	1-107-085-11	100p	50V	silvered mica
C57	1-102-950-11	13p	50V	
C58	1-102-810-11	8p	50V	
C59	1-102-942-11	5p	50V	
C60	1-107-087-11	120p	50V	silvered mica
C61,62	1-108-394-12	0.001	100V	mylar
C63	1-121-426-11	470	16V	elect
C64	1-101-455-11	1000p	50V	
C65	1-121-245-11	1000	16V	elect
C66	1-101-059-11	510p	50V	
C67	1-101-923-11	0.01	50V	
C68	1-101-455-11	1000p	50V	
C69	1-102-941-11	4p	50V	
C70	1-101-798-11	0.2	50V	
C71	1-102-953-11	18p	50V	
C72	1-102-973-11	100p	50V	
CT1~3	1-141-146-00	Trimmer, 2 gang		
CT4-1	1-141-097-00	Trimmer, single		
CT4-2	1-141-146-00	Trimmer, 2 gang		
CT5-1	1-141-146-00	Trimmer, 2 gang		
CT5-2	1-141-097-00	Trimmer, single		
CT6	1-141-146-00	Trimmer, 2 gang		
VC	1-151-250-00	Variable, 4 gang		

RESISTORS

All resistors are in Ω. ¼W, ±5% carbon resistors (except particular type) are omitted.
Check the schematic diagram for the resistance values. (k = 1000)

Ref. No.	Part No.		
R43	1-244-839-11	39	½W
R44	1-244-835-11	27	½W
VR1~3	1-224-444-00	20k (A), variable; VOLUME/ BASS/TREBLE	

SWITCHES

Ref. No.	Part No.	Description
S1	1-516-680-21	Slide, POWER
S2	1-516-680-11	Slide, AFC
S3	1-516-680-11	Slide, function; RADIO/PHONO select
S4	1-516-343-00	Slide, AC/DC select
S5	1-516-679-00	Push, LIGHT
S6, S7, S8, S9, S10, S11	1-516-678-00	Slide, band selector
S12	1-516-174-00	Voltage selector

JACKS

Ref. No.	Part No.	Description
J1	1-507-398-00	Phone, earphone
J2	1-509-508-00	5P, REC/PHONO
SK	1-509-547-00	3P, MAINS INPUT (UK Model)

Ref. No.	Part No.	Description
	MISCELLANEOUS	
ANT	1-501-072-00	Antenna, telescopic
CF1,2	1-527-184-11	Filter, ceramic; 10.7 MHz (SFE)
	-15	
CL1	1-231-286-00	Filter, band pass
CR1	1-231-211-00	Encapsulated Component, C-R
CR2	1-231-202-00	Encapsulated Component, C-R
F1	1-532-084-00	Fuse, 100 mAT
F2,3	1-532-235-00	Fuse, 315 mAT
SP	1-502-534-00	Speaker
	1-534-817-00	AC cord (AEP Model)
	1-508-647-00	Pin, jumper
	1-508-694-00	Connector, pin
	1-508-742-00	Connector, pin
	1-509-584-00	Connector, socket; 8p
	1-509-730-00	Connector, socket; 3p

II. HARDWARE

SCREWS

All screws are Phillips (cross recess) type unless otherwise indicated.

7-681-348-04	RK	3x8
7-682-148-01	P	3x8
7-685-531-15	B	2.6x4, self-tapping
7-685-546-11	B	3x8, self-tapping

WASHERS

7-623-108-21	3, large
7-623-908-01	3, fiber

MISCELLANEOUS

7-623-108-01	Retaining Ring, E-4
7-623-605-00	Eyelet 1.3x2.5
7-633-120-31	Dial Cord, 0.3
7-684-035-00	Nut 5

Ref. No.	Part No.	Description
	12. ACCESSORIES & PACKING MATERIALS	
	X-3849-608-0	Case Ass'y, battery
	1-504-034-12	Earphone, ME-20
	1-534-819-00	Cord, power; DK-37 (UK Model)
	3-532-310-00	Bag, polyethylene
	3-701-625-00	Bag, polyethtlene
	3-849-627-00	Carton
	3-849-629-00	Cushion
	3-995-705-11	Manual, instruction
	3-998-901-00	Label, serial No.